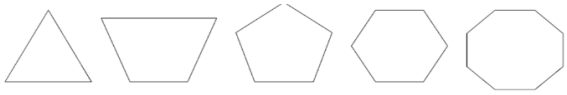
Angle Relationships in Polygon



Name	# of sides	# of triangles	# of triangles x 180	Sum of Interior Angles
Triangle	3	1	1X180=180	180
Quadrilateral	4	2	2x180=360	360
Pentagon	5	3	3x180=540	540
Hexagon	6	4	4x180=	720
Octagon	8	6	6x180=	1080
n-gon	n	n-2	(n-2)(180)	(n-2)(180)

Summary of Sum of interior angles of a Polygon Theorem

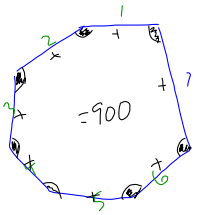
$S = 180(n-2)$

For Practice The sum of the interior angles of a Polygon Theorem –
p. 391 # 1c 2a 3b 9a 10 11.

ex How many degrees are in a septagon?

septagon → 7 sides

$S = 180(n-2)$
$= 180(7-2)$
$= 180(5)$
$= 900$



ex2 If my shape has 20 sides, what is the sum of the interior angles?

18
18
144
18

$S = 180(n-2)$
$= 180(20-2)$
$= 180(18)$
$= 3240$

b.) If my shape is regular (all angles/sides SAME) how big is each angle?

$\text{Interior Angle} = \frac{180(n-2)}{n}$
$= \frac{3240}{20}$
$= 162$